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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,371	09/27/2006	Bernardus Hendrikus Hendriks	NL 040334	7698
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EXAMINER				
RHODES, JR, LEON W				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/599,371

Applicant(s)

HENDRIKS ET AL.

Examiner

LEON W. RHODES, JR

Art Unit

4183

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-10 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 27 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-850)
Paper No(s)/Mail Date 10/10/2007 and 11/08/2007
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9 rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboi et al. (US PGPub 2001/0017985), hereafter Tsuboi, in view of Bartels (US PGPub 2002/0090168).
3. With regard to claims 1-9: Tsuboi teaches a lens chamber in Figures 3A-3C in combination with Figures 20A thru 23B (space defined between diaphragm **107**, transparent substrate **102**, and cylindrical container **105**) defining a light path (the diaphragm, as shown in **Figs 3A-3C**, limits and defines the incoming light by means of a central aperture **D3**, **paragraph 46 lines 17-19**) and having a lens face (contact area between cover plate **106** and fluid **121**, including the hydrophilic film **113**) along that light path;
4. a fluid system (combination of fluids **8 and 9** in Figs 20A-23B) residing in said chambers and including a first fluid **9** having a first index of refraction and a second fluid

8 having a second index of refraction (indices of refraction are inherent properties of a material, and all materials have an index of refraction), the first index of refraction being different from the second index of refraction (**paragraph 174**, lines 3-6), said fluids furthermore being immiscible (**paragraph 84** describes the liquids as being silicone oil and an electrolyte with dissolved sodium chloride, which are immiscible, and paragraph 174 describes a distinct boundary between the two fluids, which would not be present in miscible fluids) and the fluids are furthermore differently attracted to electric fields (Paragraph 174, **lines 6-10**) and;

5. a fluid system switch (comprising electrodes and a control circuit, not shown in drawings but disclosed in **paragraph 175 lines 2 – 3**) comprising electrodes **10** and **11** operative to rearrange the fluid system between a first discrete state (the non-energizing of the electrodes shown in figure 20A) and a second discrete state (shown in Figure 20B and characterized by energizing the electrodes) by means of electrostatic forces (described in **paragraphs 172 and 173** as alternating $\pm 200V$ potentials applied to the electrodes. Wherein in the first discrete state the at least one lens face is substantially covered by the first fluid (in the embodiments of figures **20A-23B** the one lens face is the surface in contact with the first fluid **9** in the **A** version of each figure. It would be obvious to a person having ordinary skill in the art at the time of the invention that the first fluid 9 of figures 20A-23B corresponds with the fluid 121 of figures 3A-3B, and therefore the surface in contact with the fluid 9 corresponds to the lens face of figure 3) and in the second discrete state (shown in figure 23B) the at least one lens face is substantially covered by the second fluid (as seen in figure 3C the second fluid, here

labeled 122 which corresponds to fluid 8, comes into contact and substantially covers the lens face. This is repeated many times, for example in figures 7B, 8C and 10C, which would lead n having ordinary skill in the art at the time of the invention to apply the same to Figures 20B, 21C, and 23B in order to allow the maximum amount of light to flow through the lens, as described in **paragraph 58 lines 4-11**).

6. Tsuboi does not teach a storage chamber that is fluidly connected with the lens chamber such that the lens chamber and the storage chamber together form a closed system, that the lens face has an aspherical shape, or that the lens face is formed of a material that has the same index of refraction as one of the fluids.

7. Bartels teaches in **Fig 2** a Fresnel lens with liquid channel which is used to adjust the lens. This lens uses a liquid **F** which is contained within a lens chamber **20** and a storage chamber **201** which is fluidly connected to the lens chamber and the combination of the lens chamber and the storage chamber, forming a closed system for the fluid (being able to switch from the configuration in 2a and 2b repeated, described in **paragraph 33 lines 11-18**). The lens taught by Bartels also has an aspherical inner surface (a Fresnel lens surface, paragraph 33 **lines 6-8**) which provides for a combination of focusing power and aberration compensation (a Fresnel lens provides a combination of focusing power and aberration compensation. Defocus is a form of optical aberration, so because a Fresnel lens focuses light it is capable of aberration compensation and meets the claimed limitation), and the lens face of Bartels is taught to be a material with the same index of refraction as the fluid (**paragraph 35 lines 1-4**). The lens of Bartels is taught to be used to allow the Fresnel lens to be activated and

deactivated by simply shifting the fluid in and out of the lens cavity (paragraph 35 and paragraph 36).

8. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the adjustable focus lens of Tsuboi to use the Fresnel-containing lens cavity with storage cavity of Bartels in order to produce a lens with both a variable focus and a Fresnel optical portion which can be deactivated by the motion of the fluids.

9. With regard to claim 2: Tsuboi discloses that the interior surfaces **113 and 111** (Fig 3) of the closed system have different wettability in respect to the first and second fluids (**paragraph 58 lines 25-30** describes the hydrophilic and hydrophobic natures of the surfaces)

10. With regard to claim 4: Tsuboi discloses that the lens chamber comprises two lens faces; the aforementioned interface between cover plate **106** and liquid **121** and the additional interface between insulating layer **104** and fluid **122** in Figure 3A, also comprising the hydrophobic film **111**.

11. With regard to claims 6, 8, and 9: Tsuboi discloses the use of the deforming electro-wetting lens element in a camera module **1150** (digital still camera, **paragraph 121 line 3**) with a camera lens arrangement **1140** (**Fig 15** Imaging optical system), also containing (and therefore integral with) additional lenses 1141 and 1142 (of which 1141 is used for focusing, **paragraph 121 lines 3-4**, wherein the discrete states of the discretely adjustable focusing lens correspond to a macro lens state and a micro lens

state (the lens positioning in the imaging optical system is disclosed as being used for zooming, **paragraph 121 lines 5-6**), broadly interpreting macro and micro lens states to be determined by the size of the imaged object on the digital image sensor **1144** (CCD), a zoomed image would correspond to a macro lens state and an unzoomed imaged would correspond to a micro lens state.

12. With regard to claim 7: Tsuboi as applied to claim 6 does not teach the use of an additional lens that is continuously switchable by means of electrowetting forces.

Tsuboi does teach however, in **Figure 5** the use of a similar electrowetting element to replace the diaphragm of a digital still camera, resulting in a diaphragm which is smaller and does not suffer from diffraction effects (**paragraph 64**). It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the camera of Fig 15, replacing the standard diaphragm **1143** (Paragraph 121, line 9) with the electrowetting diaphragm of Fig 5 for the purpose of obtaining a camera which does not suffer diffractive effects arising from the diaphragm.

13. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboi and Bartels, in further view of Chauhan (US PGPub 2004/0170422 A1).

14. With regards to claim 10: Tsuboi and Bartels as applied to claim 6 above does not teach the use of the focusable zoomable lens arrangement of claim 6 in a mobile phone with camera functionally. Chauhan in **Figures 1-5** teaches a mobile telephone **100** having camera functionality **120** (camera unit) with mirrors to allow the use of the camera phone to take a self portrait. It would have been obvious to a person having

ordinary skill in the art at the time of the invention to use the camera lens arrangement of Tsuboi and Bartels in the camera phone of Chauhan in order to allow the camera phone to better focus on the close-up face of the photographer during self-portraits.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Stoner (US Patent 6,288,846 B1) teaches optical elements, some aspherical, which are switchable by introducing fluid between two layers of the elements.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEON W. RHODES, JR whose telephone number is 571-270-5774. The examiner can normally be reached on Monday thru Thursday 07:00 thru 17:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Landau can be reached on 571-272-1731. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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December 31, 2008